

REMARKS

This application has been carefully reviewed in light of the final Office Action dated March 20, 2008. Claims 1 and 2 are currently in the application, with claim 5 having been cancelled without prejudice or disclaimer of the subject matter contained therein. Claim 1 is the sole independent claim. Reconsideration and further examination are respectfully requested.

Claims 1, 2 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,382,600 ("Mahr") modified by an allegedly obvious design choice. Applicants have reviewed Mahr and respectfully submit that the claimed invention is patentably distinguishable over Mahr for at least the following reasons.

As indicated above, claim 1 has been amended to provide additional details on the ring shaped protruding ridge provided on the tip end portion of the injection nozzle. The ring shaped protruding ridge is formed to be a convexly protruded portion having a width and extended from the outer peripheral surface of the exhaust gas downstream side end portion in an outward direction substantially orthogonal to a central axis of the injection nozzle. The ring shaped protruding ridge is further formed in a tapered shape by forming inclined chamfers on corner portions on the upstream side and the downstream side of the exhaust gas flow direction on an outer peripheral surface of an outer end portion of the ring shaped protruding ridge. The outer peripheral surface includes at least one injection hole for ejecting the reducing agent in the outward direction substantially orthogonal to the central axis of the injection nozzle. Support for the amendment may be found at least in Figures 3A and 3B and beginning on page 11, line 11, of the specification.

The Office Action has maintained that spray head 6 depicted in Figures 1 and 2 of Mahr corresponds to the ring shaped protruding ridge of the claimed invention. Applicants respectfully disagree.

As amended, claim 1 now describes the ring shaped protruding ridge as formed to be a convexly protruded portion having a width and extended from the outer peripheral surface of the exhaust gas downstream side end portion in an outward direction substantially orthogonal to a central axis of the injection nozzle. Spray head 6 does not extend along its width from an outer peripheral surface of the reducing agent line 4 in an outward direction substantially orthogonal to the central axis of the reducing agent line 4. Rather, the spray head 6 described in Mahr is shown as protruding backwards away from the end of the reducing agent line 4.

Claim 1 has been amended further to describe the ring shaped protruding ridge as being formed in a tapered shape by forming inclined chamfers on corner portions on the upstream side and the downstream side of the exhaust flow direction on an outer peripheral surface of an outer end portion of the ring shaped protruding ridge. Nothing in Mahr describes the spray head 6 having a tapered shape with inclined chamfers formed on corner portions on the upstream side and on the downstream side of the exhaust flow direction. Accordingly, Mahr does not disclose or suggest all of the limitations of the claimed invention.

The Office Action contended that the specific angle of the outward direction of the injection hole relative to a central axis of the injection nozzle would have been an obvious matter of design choice within the level of ordinary skill in the art. Even if this were an accurate understanding of the level of ordinary skill in the art, which Applicants do not concede, Mahr describes the angle of the opening in the spray head with the axis of the spread head as being at least 5 degrees and preferably 50 degrees. See Mahr, col. 2, lines 17-20. Nothing in Mahr

provides a suggestion or motivation to modify the openings of the spray head to have an angle of 90 degrees with the axis of the spray head. In fact, the preferred angle of 50 degrees arguably teaches away from a substantially orthogonal angle (i.e., 90 degrees).

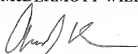
Therefore, independent claim 1 is believed to be allowable over Mahr. Reconsideration and withdrawal of the § 103(a) rejection of claim 1 are respectfully requested.

Claim 2 depends from claim 1 and therefore is believed to be allowable over Mahr for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 502203 and please credit any excess fees to such deposit account.

Respectfully submitted,
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